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THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS

In accordance with UKAS accreditation to ISO 17065 Certification is Hereby Granted

to

Ceramica Mayor S.A.

Partida Planet Molinera S/N
03510 Callosa d'en Sarria Alicante, Spain

for

16 mm thick "FK-16" Ceramic Tiles
Non-Loadbearing Exterior Cladding Assembly
Horizontal System
Test Method: NFPA 285-2012 Edition
System Designation: N004010-16

which, subject to limitations described on the following pages and continued listing on www.tbwcert.com, complies with Product Certification Scheme *SD03 Exterior Wall Assemblies, Cladding, Curtain Walls, Building Materials, Products, and Assemblies*

In witness whereof this Certificate is issued this 29th day of September 2019

THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS
CERTIFIED

Sandy Dweik
Chief Executive Officer

Nicholas Purcell
Director of Certification

Certificate Number: TBW0300485

Initial registration: September 29, 2019 Issued: September 29, 2019 Expiration: September 28, 2022
File Name: RG090_Ceramica Mayor S.A._(Horizontal System)

16 mm thick "FK-16" Ceramic Tiles
Non-Loadbearing Exterior Cladding Assembly
Horizontal System
System Designation: N004010-16

A. Certification is given for 16 mm thick "FK-16" Ceramic Tiles Non-Loadbearing Exterior Cladding Assembly-Horizontal System which has **successfully met** the requirements for fire propagation characteristics when evaluated against NFPA 285-2012 Edition, subject to the limitations below. Readers of this document should be familiar with Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Loadbearing Wall Assemblies Containing Combustible Components and the requirements of ISO/IEC 17065:2012. The Certification will be listed on www.tbwcert.com, while it remains current. This Certification is not valid if this product is not so listed.

B. The product is approved on the basis of TBWIC Product Certification Scheme SD03 for Exterior Wall Assemblies, Cladding, Curtain Walls, Building Materials, Products and Assemblies which includes pre-test sampling, evidence of performance (under ref: TBWIC Test Report No. RH002 Rev.0), Technical Verification and Proof of Performance, compliance to Factory Production Control requirements and surveillance & Re-certification Inspection/ Audits.

C. Limitations:

C.1. This Certification covers the fire propagation characteristics of a non-loadbearing exterior wall cladding system when evaluated against the NFPA 285-2012 Edition. The wall cladding assembly has been evaluated for fire propagation characteristics as specified in the following*:

a. The ability of the wall assembly to resist flame propagation over the exterior face of the wall assembly*

b. The ability of the wall assembly to resist vertical flame propagation within the combustible components from one story to the next*

c. The ability of the wall assembly to resist vertical flame propagation over the interior surface of the wall assembly from one story to the next* and,

d. The ability of the wall assembly to resist lateral flame propagation from the compartment of fire origin to adjacent compartments or spaces*.

C.2. This Certification covers the performance of the non-loadbearing exterior wall cladding system when exposed to fire from an interior room that reaches flashover, breaks exterior windows and exposes the building façade. It is not intended to address fire exposures that originate from the building's exterior*.

C.3. This Certification covers the non-loadbearing exterior wall cladding system in its entirety. Individual components that comprise the wall cladding system (on their own) are not covered under this certification.

C.4. The actual field installations of the non-loadbearing exterior wall cladding system covered under this certification shall not limit the use of the methods and materials employed to seal the gap between the edge of the floor slab and the interior surface of the test specimen during the test, provided approved sealing methods and materials are used in the field*.

C.5. The design of the non-loadbearing exterior wall cladding assembly covered under this certification including the exact specification of the components, a method of fixing and condition of such component which was subjected to the fire test shall be duplicated when installed on the site. The design and components of the non-load-bearing exterior wall cladding assembly are not intended to be substituted, eliminated or interchanged unless recognized and approved by this certification.

**NFPA 285 2012 Edition*

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Nicholas Purcell

C.6. This certification covers the components and configuration as tested in Section D and the variations stated in Section E of this document.

C.7. The test (and Certification) do not address the following:

a. Air and Water Permeability
b. Measurement of heat transmission
c. Classification or definition of material as noncombustible
d. Any Resistance to Fire rating
e. Toxicity level of smoke developed during combustion
f. Effect of aggravated flame spread behaviour of an assembly resulting from the proximity of combustible materials.
g. Effects of combustible accessories installed or fixed on the surface of exterior cladding material such as laminates, banners, signage and alike.

D. System Configuration

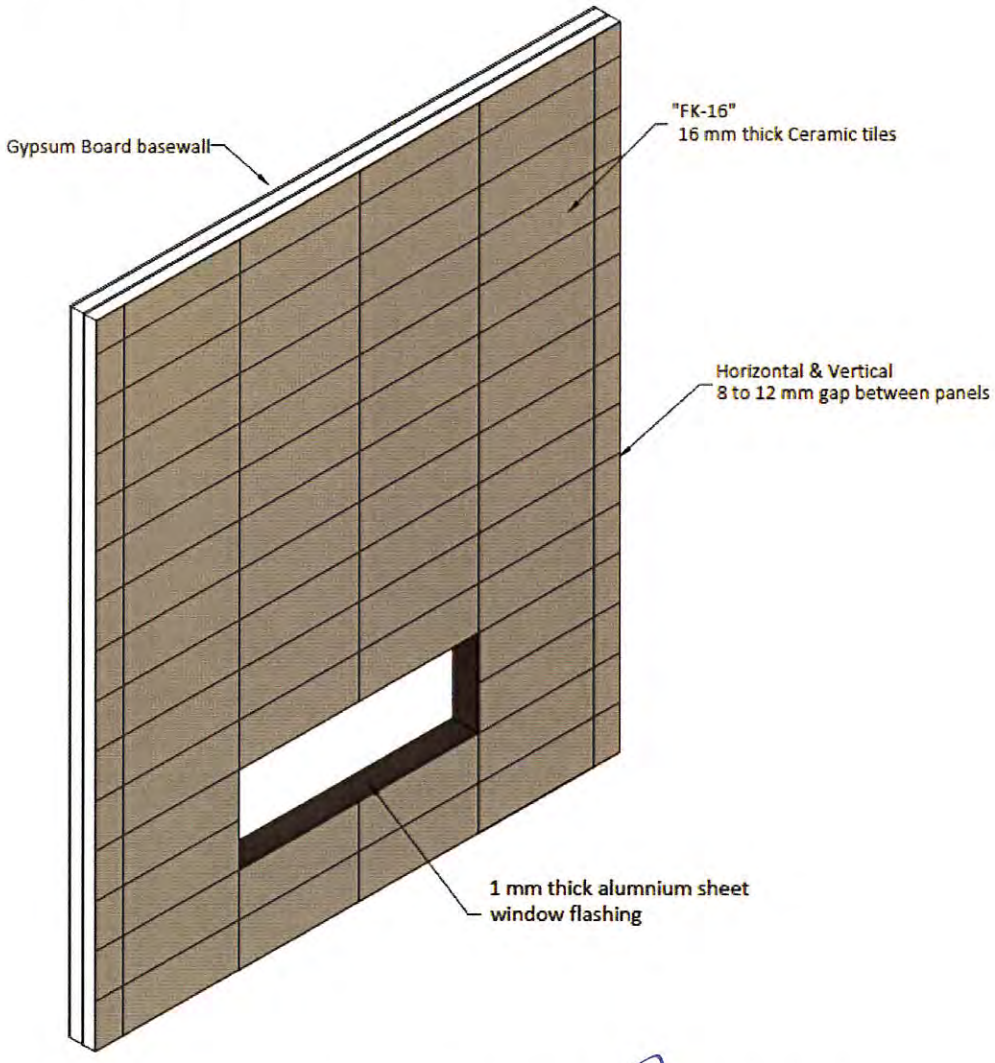

Figure 1. "FK-16" Non-Load-Bearing Exterior Cladding System

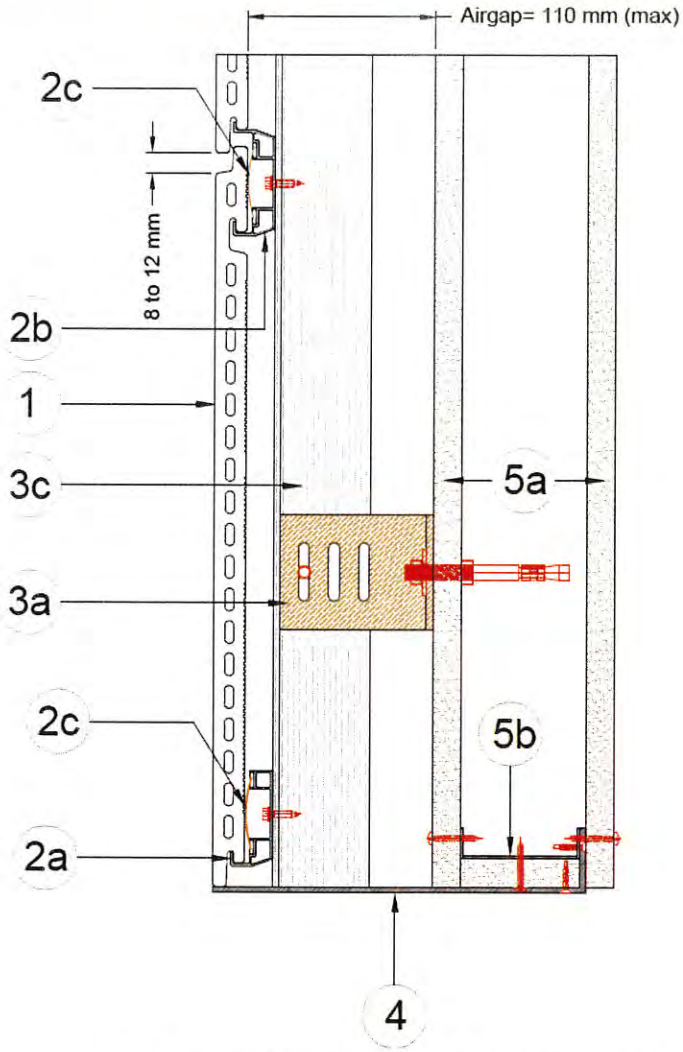

Figure 2. Non-load-bearing exterior wall cladding assembly typical vertical joint and window section details

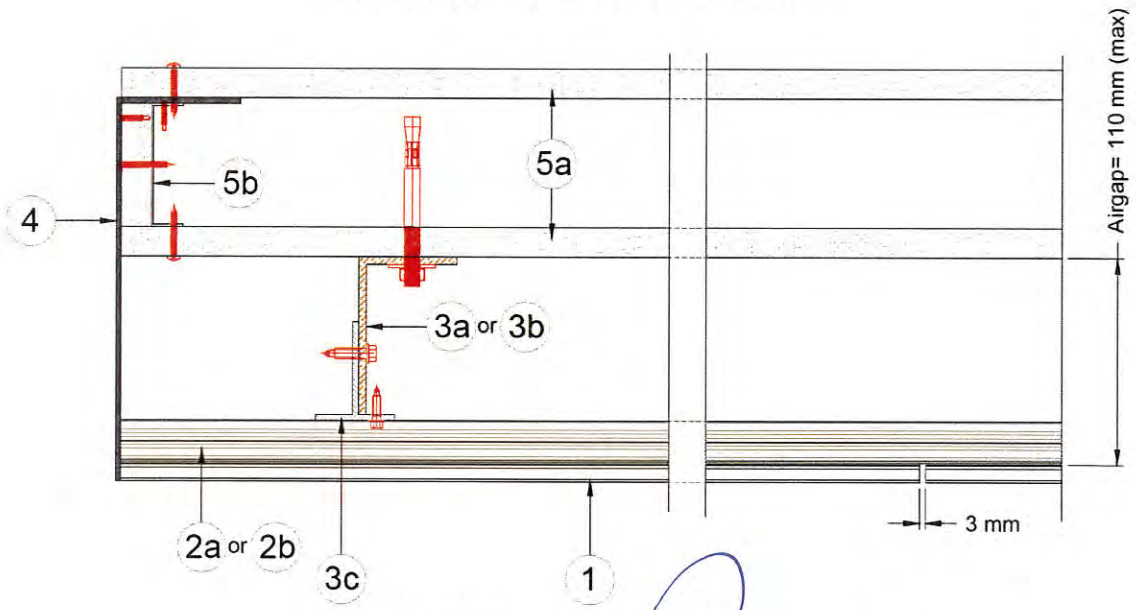

Figure 3. Non-load-bearing exterior wall cladding assembly typical horizontal joint and window section details

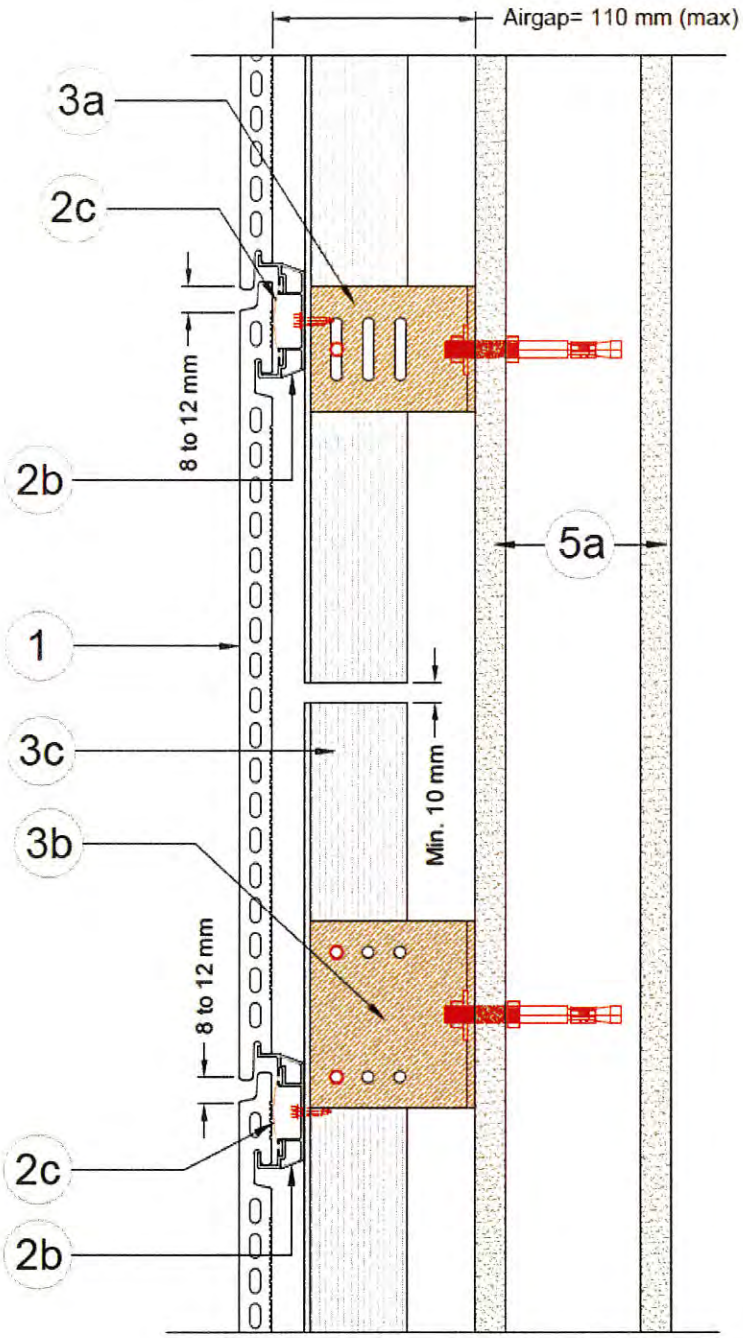

Figure 4. Non-load-bearing exterior wall cladding assembly typical vertical joint section details

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1. Exterior Cladding Material

The cladding material was a 16 mm thick extruded ceramic tiles. The tiles were hung to the substrate using aluminium extrusion carriers.

A gap of 8-12 mm was maintained at the joints between the tiles. Details of the tiles are stated in Table 1 below.

Table 1. "FK-16" tiles details (as tested)

Product Reference/ Model No.	"FK-16"
Manufacturer	Ceramica Mayor
Weight	27 ± 1.0 kg/m²
Thickness	16 ± 1.5 mm
Dimension	380 × 1000 mm (width × length)

2. Tile Fixing Components

2a. Horizontal start-end profile

Aluminium extrusion profile (Aluminium Alloy 6063 T5) fixed to the vertical runners using Ø4.2 × 19 mm stainless-steel self-drilling screw. The profile is fixed at the bottom and top edge of the wall assembly.

Reference: PSOA start-end
Manufacturer: Ceramica Mayor- S.A.

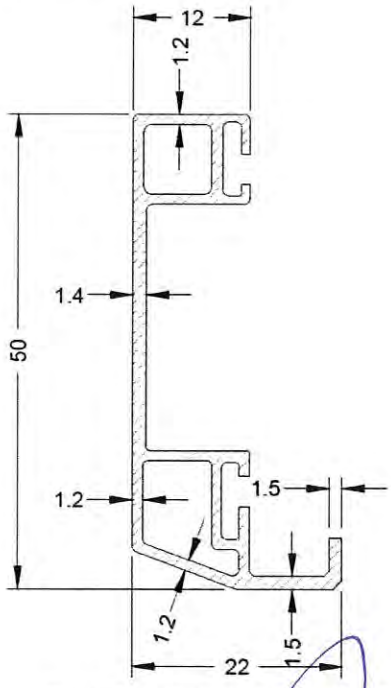

Figure 5. Horizontal start-end profile
(all units in millimeters unless otherwise specified)

2b. Horizontal intermediate Profile

Aluminium extrusion profile (Aluminium Alloy 6063 T5) fixed to the vertical runners using Ø4.2 × 19 mm stainless-steel self-drilling screw. The profile is fixed at the bottom and top edge of the wall assembly.

Reference: PSOI intermediate
Manufacturer: Ceramica Mayor- S.A.

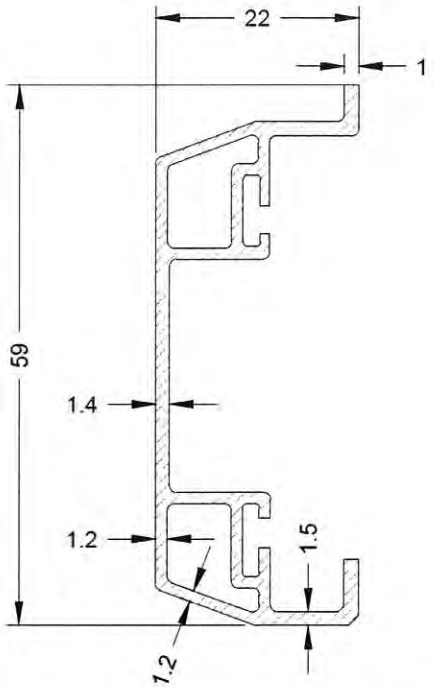

Figure 6. Horizontal intermediate profile
(all units in millimeters unless otherwise specified)

2c. Spring
Material: Stainless Steel Grade 316
Dimension: 42 × 40 × 0.3 mm (length × width × thickness)
Application: Inserted into the groove at the horizontal profile and pressed against the back of the tiles to lock it in place.

3. Sub-framing

3a. Wall Bracket- Sliding Point
Material: Aluminium Alloy 6063-T5
Reference: MS 80 × 90 × 50 × 4 Supporting bracket
Manufacturer: Ceramica Mayor- S. A.

3b. Wall Bracket-Fixed Point
Material: Aluminium Alloy 6063-T5
Reference: MS 80 × 60 × 50 × 4 Supporting bracket
Manufacturer: Ceramica Mayor- S. A.

3c. Vertical T Profile
Material: Aluminium Alloy 6063-T5
Reference: T40 × 50 × 3
Manufacturer: Ceramica Mayor- S. A.

4. Window Flashing
1.0 mm thick aluminium sheet (Aluminium Alloy 6063 T5) fixed within the window aperture using Ø4.2 mm × 38 mm steel screws (DIN 7504P-Phil drive flat head-self drilling) at a nominal spacing of 152 mm centres. The flashing overlaps the interior wall by 51 mm.

5. Base Wall

5a. Interior & Exterior Gypsum Board
1220 × 2400 × 15.9 mm (width × height × thickness) "Type X" gypsum board fixed on 1.2 mm thick galvanized steel studs and tracks. The boards are fixed to the studs and tracks using Ø3.5 mm × 35 mm zinc-coated drywall screws at a nominal spacing of 300 mm. The board joints were covered with gypsum board jointing tape and jointing compound. Screw heads were covered with jointing compound.

5b. Steel Studs and Tracks
1.2 mm thick galvanized steel (ASTM A653/A653M- Commercial Grade) studs (92 × 32 × 32 × 9 mm, web × flange × flange × return) and tracks (95 × 25 × 25 mm, web × flange × flange) welded directly to the base frame.

E. Approved Variations

This certification is valid for the variations of the product and the system as listed below:

- The range of colours in which the Tempio® tiles are manufactured;
- Type of mounting system (FK or FS system);
- Profile and shape in which the Tempio® tiles are manufactured;
- Thicknesses in which the Tempio® tiles are manufactured;
- Panel Dimensions; and,
- Airgap between the outside surface of the insulation and inside surface of the Tempio® tile.

F. Manufacturer Details

Partida Planet Molinera S/N
03510 Callosa d´en Sarria Alicante, Spain

Certificate number: TBW0300485

Director of Certification
Nicholas Purcell

Seal number: 100655

Issued: 29 Sep. 2019
Valid to: 28 Sep. 2022